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Jianfei He

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EXAMINER

GHAFOERKHAN, FAIYAZKHAN

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2419

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,514	Applicant(s) HE ET AL.	
	Examiner FAIYAZKHAN GHAFOERKHAN	Art Unit 2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9 is/are rejected.
- 7) ☒ Claim(s) 5-8 and 10-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/26/08, 3/12/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-17 have been examined and are pending.

Specification

1. The disclosure is objected to because of the following informalities:

Paragraph [0029], line 1, "Step 102" should be changed to "Step 202".

Paragraph [0029], line 2, "Step 103" should be changed to "Step 203".

Paragraph [0030], line 1, "Step 103", should be changed to "Step 203".

Paragraph [0031], line 5, "LSPc" should be changed to "LSPs".

Paragraph [0033], line 2, "LSPc" should be changed to "LSPs".

Paragraph [0035], line 2, "LSPc" should be changed to "LSPs".

Appropriate correction is required.

Claim Objections

2. Claim 3 is objected to because of the following informalities: line 4, "FIFO)" should be changed to "(FIFO)". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2419

5. Regarding claim 5 and 7, the phrase "suppose" renders the claims indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1 is rejected under 35 U.S.C. 102(e) as being anticipated by US 6,859,842 B1 to Nakamichi et al. (hereinafter "Nakamichi").

As per claim 1, Nakamichi teaches a method for data forwarding in label switching networks (Abstract of Nakamichi), comprising the following steps: at the source node, distributing and mapping all the data packets forming an original data flow to be forwarded to multiple Label Switching Paths (LSPs) for forwarding (Fig. 15, of Nakamichi shows the incoming packets to the Label Switch Router (LSR) and the packets are mapped to LSPs for transport to their destination); at the destination node, merging the data packets received from all the LSPs into the same data flow as the original data flow forwarded (Col. 11, lines 51-56, of Nakamichi teaches that the packet traffic is received at the egress node via different paths and the packets are reassembled into the original message).

Art Unit: 2419

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 2, 4, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamichi as applied to claim 1 above, and further in view of US 6,788,686 B1 to Khotimsky et al. (hereinafter “Khotimsky”).

As per claim 2, Nakamichi teaches the method according to claim 1, **but is silent on** further comprising: at the source node, adding a sequence number to each data packet forming the original data flow to be forwarded according to the forwarding order before performing the step of mapping the data packets to the LSPs; wherein the step of merging the data packets comprises: merging the data packets received from the LSPs in the order of the sequence numbers, removing the sequence numbers of the merged data packets, and obtaining the same data flow as the original one to be forwarded.

However, Khotimsky teaches at the source node, adding a sequence number to each data packet forming the original data flow to be forwarded according to the forwarding order before performing the step of mapping the data packets to the LSPs (**Col. 6, lines 16-19, of Khotimsky teaches that packets are broken up into numbered segments and transmitted across different links**); wherein the step of merging the data packets comprises: merging the data packets received from the LSPs in the order of the sequence numbers, removing the sequence numbers of the merged data packets, and obtaining the same data flow as the original one to be forwarded (**Col. 6, lines 16-19, of Khotimsky teaches that the receiver uses the sequence numbers to restore the segment order**).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the teachings of Nakamichi with the teachings of Khotimsky to provide for correct packet re-assembly at the receiver node as suggested by Khotimsky (Col. 6, lines 16-19).

As per claim 4, Nakamichi teaches the method according to claim 2, but is silent on wherein the step of adding a sequence number comprises: the sequence number to be added to

Art Unit: 2419

the data packet being increased according to the transmitting order (**Col. 6, lines 4-5, of Khotimsky teaches that a time stamp can be a sequence number. Time stamps would change/increase with each packet that is transmitted**).

However, Khotimsky teaches wherein the step of adding a sequence number comprises: the sequence number to be added to the data packet being increased according to the transmitting order (**Col. 6, lines 4-5, of Khotimsky teach that a time stamp can be a sequence number. Time stamps would change/increase with each packet that is transmitted**).

The examiner supplies the same rational to combine the teachings of Nakamichi with the teachings of Khotimsky as in claim 2.

As per claim 9, the combination of Nakamichi and Khotimsky teaches a data forwarding system in label switching networks (**Fig. 1, of Nakamichi**), comprising at least a service bearer logical layer (**Fig. 1, of Nakamichi shows two bearer paths from the ingress LSR to the egress LSR**), which comprises at least a source node (**Fig. 1, box 10, of Nakamichi, Ingress LSR**) and a destination node (**Fig. 1, box 12, of Nakamichi, Egress LSR**), and a basic network layer (**Fig. 1, of Nakamichi shows a variety of LSRs interconnected**), which comprises multiple label switching path(LSP) (**Fig. 1, LSP21 and LSP 22, of Nakamichi**), wherein the source node is configured to add a sequence number to each of the data packets forming an original data flow to be forwarded according to a forwarding order (**Col. 6, lines 16-19, of Khotimsky teaches that packets are broken up into numbered segments and transmitted across different links**) and to map the data packets to more than one valid LSPs (**Fig. 15, of Nakamichi shows the packets being mapped onto a plurality of LSPs**); and the destination node is configured to merge the data packets received from each of the valid LSPs

Art Unit: 2419

according to the order of the sequence numbers, and to remove the sequence numbers of the merged data packets to obtain the same data flow as the original data flow forwarded (**Col. 6, lines 16-19, of Khotimsky teaches that the receiver uses the sequence numbers to restore the segment order**).

The examiner supplies the same rational to combine the teachings of Nakamichi with the teachings of Khotimsky as in claim 2.

12. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamichi and Khotimsky as applied to claims 1-2, 4, and 9 above, and further in view of US 2002/0136230 A1 to Dell et al. (hereinafter “Dell”).

As per claim 3, Khotimsky teaches the method according to claim 2, **but is silent on** wherein the step of mapping the data packets to the LSPs for forwarding comprises:

- a1. determining the current data packet to be forwarded according to a First In First Out (FIFO) principle, and selecting one LSP through a Round Robin mode of all the valid LSPs;
- a2. deciding whether it is allowed to send a data packet via a buffer of the selected LSP, if yes, proceeding to Step a3; if not, proceeding to Step a4;
- a3. mapping the data packet to the LSP for forwarding, and proceeding to Step a1;
- a4. selecting the next LSP by the Round Robin mode, and proceeding to Step a2.

However, Dell teaches wherein the step of mapping the data packets to the LSPs for forwarding comprises:

- a1. determining the current data packet to be forwarded according to a First In First Out (FIFO) principle (**Paragraph [0026], of Dell teaches the FIFO principle of selecting transmission data**), and selecting one LSP through a Round Robin mode of all the valid LSPs

Art Unit: 2419

(Paragraph [0008], of Dell teaches using round-robin scheduling data to be transmitted via an output port);

a2. deciding whether it is allowed to send a data packet via a buffer of the selected LSP **(Paragraph [0008], of Dell teaches that the scheduler, using round-robin, determines when the queue is eligible for service, meaning ready to transmit data via the queue of an output port)**, if yes, proceeding to Step a3; if not, proceeding to Step a4;

a3. mapping the data packet to the LSP for forwarding **(Fig. 15, of Nakamichi shows the incoming packets being mapped to LSPs)**, and proceeding to Step a1;

a4. selecting the next LSP by the Round Robin mode **(Paragraph [0008], of Dell teaches that the scheduler, using round-robin, determines when a queue is eligible for service, meaning ready to transmit data via the queue of an output port)**, and proceeding to Step a2.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Nakamichi and Khotimsky with the teachings of Dell to help achieve a high Quality of Service as suggested by Dell (Paragraph [0012])

Allowable Subject Matter

13. Claims 8, 10-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claim 5-6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Art Unit: 2419

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FAIYAZKHAN GHAFERKHAN whose telephone number is (571) 270-7161. The examiner can normally be reached on Flexible.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. G./

Examiner, Art Unit 2419

/Salman Ahmed/

Examiner, Art Unit 2419